SEQUENCE LISTING

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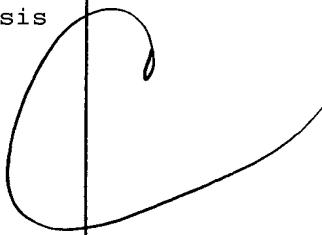<130> Mycobacterium tuberculosis antigens

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ggc atg gac aag ctg gcc gac acc gtg cgg gtg acg ctg ggg ccg cgc      96
Gly Met Asp Lys Leu Ala Asp Thr Val Arg Val Thr Leu Gly Pro Arg
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ggc cgg cat gtg gtg ctg gcc aag gcg ttt ggc gga ccc acg gtt acc     144
Gly Arg His Val Val Leu Ala Lys Ala Phe Gly Gly Pro Thr Val Thr
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aac gac ggc gtc acg gtg gca cgt gag atc gag ctg gaa gat ccg ttt     192
Asn Asp Gly Val Thr Val Ala Arg Glu Ile Glu Leu Glu Asp Pro Phe
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gaa gac ttg ggc gcc cag ctg gtg aag tcg gtg gcc acc aag acc aac     240
Glu Asp Leu Gly Ala Gln Leu Val Lys Ser Val Ala Thr Lys Thr Asn
 65                  70                  75                  80

gat gtt gcc ggt gac ggc acc acc acc gca acc atc ttg gcg cag gca     288
Asp Val Ala Gly Asp Gly Thr Thr Thr Ala Thr Ile Leu Ala Gln Ala
                 85                  90                  95

ctg atc aag ggc ggc ctg agg cta gtg gcc gcc ggc gtc aac ccg gtc     336
Leu Ile Lys Gly Gly Leu Arg Leu Val Ala Ala Gly Val Asn Pro Val
            100                 105                 110

gcg ctc ggc gtg gga atc ggc aag gcc gcc gac gcg gta ttc gag gcg     384
Ala Leu Gly Val Gly Ile Gly Lys Ala Ala Asp Ala Val Phe Glu Ala
            115                 120                 125
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ctg ctg gca tcg gcc acg ccg gtg tcc ggc aag acc ggc atc gcg cag    432
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gtg gcg acg gtg tcc tcg cgc gac gag cag atc ggt gac ctg gtt ggc    480
Val Ala Thr Val Ser Ser Arg Asp Glu Gln Ile Gly Asp Leu Val Gly
145             150             155             160

gaa gcg atg aac aag gtc ggc cac gac agc gtg gtc agc gtc aag gaa    528
Glu Ala Met Asn Lys Val Gly His Asp Ser Val Val Ser Val Lys Glu
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tcc tcc acg ctg ggc acc gag ttg gag ttc acc gaa ggt att ggc ttc    576
Ser Ser Thr Leu Gly Thr Glu Leu Glu Phe Thr Glu Gly Ile Gly Phe
            180             185             190

cac aaa ggc ttc ttg tcg gca tac ttc gtt acc gac ttc gat aac cag    624
His Lys Gly Phe Leu Ser Ala Tyr Phe Val Thr Asp Phe Asp Asn Gln
        195             200             205

cag gcg gtg ctc gag gac gcg ttg atc ctg cta cac caa gac aag atc    672
Gln Ala Val Leu Glu Asp Ala Leu Ile Leu Leu His Gln Asp Lys Ile
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agc tcg ctt ccc gat ctg ttg cca ttg ctg gaa aag gtt gca gga acg    720
Ser Ser Leu Pro Asp Leu Leu Pro Leu Leu Glu Lys Val Ala Gly Thr
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ggt aag cca cta ctg atc gtg gct gaa gac gtg gag ggc gaa gcg ttg    768
Gly Lys Pro Leu Leu Ile Val Ala Glu Asp Val Glu Gly Glu Ala Leu
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gcg acg ctg gtc gtc aac gcg att cgc aag acg ttg aaa gcg gtc gcg    816
Ala Thr Leu Val Val Asn Ala Ile Arg Lys Thr Leu Lys Ala Val Ala
            260             265             270

gtc aag ggg ccg tac ttc ggt gac cgc cgt aag gcg ttc ctt gag gac    864
Val Lys Gly Pro Tyr Phe Gly Asp Arg Arg Lys Ala Phe Leu Glu Asp
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ctg gcg gtg gtg acg ggt ggc cac gtg gtc aac ccc gac gcc ggc att    912
Leu Ala Val Val Thr Gly Gly His Val Val Asn Pro Asp Ala Gly Ile
        290             295             300

gtg ctg cgc gag gtg ggc ttg gag gtg ctg ggc tcg gcc cga cgc gtg    960
Val Leu Arg Glu Val Gly Leu Glu Val Leu Gly Ser Ala Arg Arg Val
305             310             315             320

gtg gtc agc aag gac gac acg gtc att gtc gac ggc ggc ggc acc gca   1008
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gaa gcg gtg gcc aac cgg gcg aac cac ttg cgt gcc gag atc gac aag   1056
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       Lys Ala Ala Val Glu Glu Gly Ile Val Pro Gly Gly Gly Ala Ser Leu
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       atc cac cag gcc cgc aag gcg ctg acc gaa ctg cgt gcg tcg ctg acc      1296
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       Gly Asp Glu Val Leu Gly Val Asp Val Phe Ser Glu Ala Leu Ala Ala
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 15    ccg ttg ttc tgg atc gcc gcc aac gct ggc ttg gac ggc tcg gtg gtg      1392
       Pro Leu Phe Trp Ile Ala Ala Asn Ala Gly Leu Asp Gly Ser Val Val
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       gtc aac aag gtc agc gag cta ccc gcc ggg cat ggg ctg aac gtg aac      1440
       Val Asn Lys Val Ser Glu Leu Pro Ala Gly His Gly Leu Asn Val Asn
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       acc ctg agc tat ggt gac ttg gcc gct gac ggc gtc atc gac ccg gtc      1488
       Thr Leu Ser Tyr Gly Asp Leu Ala Ala Asp Gly Val Ile Asp Pro Val
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       aag gtg act agg tcg gcg gtg ttg aac gcg tca tcg gtt gcc cgg atg      1536
 25    Lys Val Thr Arg Ser Ala Val Leu Asn Ala Ser Ser Val Ala Arg Met
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       gta ctc acc acc gag acg gtc gtg gtc gac aag ccg gcc aag gca gaa      1584
       Val Leu Thr Thr Glu Thr Val Val Val Asp Lys Pro Ala Lys Ala Glu
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       Gly Arg His Val Val Leu Ala Lys Ala Phe Gly Gly Pro Thr Val Thr
                 35               40               45
       Asn Asp Gly Val Thr Val Ala Arg Glu Ile Glu Leu Glu Asp Pro Phe
 45        50               55               60
       Glu Asp Leu Gly Ala Gln Leu Val Lys Ser Val Ala Thr Lys Thr Asn
         65               70               75               80
       Asp Val Ala Gly Asp Gly Thr Thr Thr Ala Thr Ile Leu Ala Gln Ala
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     Ala Leu Gly Val Gly Ile Gly Lys Ala Ala Asp Ala Val Phe Glu Ala
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     Leu Leu Ala Ser Ala Thr Pro Val Ser Gly Lys Thr Gly Ile Ala Gln
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     Val Ala Thr Val Ser Ser Arg Asp Glu Gln Ile Gly Asp Leu Val Gly
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 10  Glu Ala Met Asn Lys Val Gly His Asp Ser Val Val Ser Val Lys Glu
                 165                     170                     175
     Ser Ser Thr Leu Gly Thr Glu Leu Glu Phe Thr Glu Gly Ile Gly Phe
             180                     185                     190
     His Lys Gly Phe Leu Ser Ala Tyr Phe Val Thr Asp Phe Asp Asn Gln
 15          195                     200                     205
     Gln Ala Val Leu Glu Asp Ala Leu Ile Leu Leu His Gln Asp Lys Ile
         210                     215                     220
     Ser Ser Leu Pro Asp Leu Leu Pro Leu Leu Glu Lys Val Ala Gly Thr
     225                     230                     235                 240
 20  Gly Lys Pro Leu Leu Ile Val Ala Glu Asp Val Glu Gly Glu Ala Leu
                 245                     250                     255
     Ala Thr Leu Val Val Asn Ala Ile Arg Lys Thr Leu Lys Ala Val Ala
                 260                     265                     270
     Val Lys Gly Pro Tyr Phe Gly Asp Arg Arg Lys Ala Phe Leu Glu Asp
 25          275                     280                     285
     Leu Ala Val Val Thr Gly Gly His Val Val Asn Pro Asp Ala Gly Ile
             290                     295                     300
     Val Leu Arg Glu Val Gly Leu Glu Val Leu Gly Ser Ala Arg Arg Val
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 30  Val Val Ser Lys Asp Asp Thr Val Ile Val Asp Gly Gly Gly Thr Ala
                 325                     330                     335
     Glu Ala Val Ala Asn Arg Ala Asn His Leu Arg Ala Glu Ile Asp Lys
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     Ser Asp Ser Asp Trp Asp Arg Glu Lys Leu Gly Glu Arg Leu Ala Lys
 35          355                     360                     365
     Leu Ala Gly Gly Val Ala Val Ile Lys Val Gly Ala Ala Thr Asp Thr
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     Ala Leu Lys Glu Arg Lys Glu Ser Val Glu Asp Ala Val Ala Ala Ala
     385                     390                     395                 400
 40  Lys Ala Ala Val Glu Glu Gly Ile Val Pro Gly Gly Gly Ala Ser Leu
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     Ile His Gln Ala Arg Lys Ala Leu Thr Glu Leu Arg Ala Ser Leu Thr
                 420                     425                     430
     Gly Asp Glu Val Leu Gly Val Asp Val Phe Ser Glu Ala Leu Ala Ala
 45          435                     440                     445
     Pro Leu Phe Trp Ile Ala Ala Asn Ala Gly Leu Asp Gly Ser Val Val
         450                     455                     460
     Val Asn Lys Val Ser Glu Leu Pro Ala Gly His Gly Leu Asn Val Asn
     465                     470                     475                 480
 50  Thr Leu Ser Tyr Gly Asp Leu Ala Ala Asp Gly Val Ile Asp Pro Val
                 485                     490                     495
     Lys Val Thr Arg Ser Ala Val Leu Asn Ala Ser Ser Val Ala Arg Met
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ggg ttg ctg gtc ggc gga ctg ctc cta gca gcg ccc ccg ttg gcc ggc      96
Gly Leu Leu Leu Gly Gly Leu Leu Leu Ala Ala Pro Pro Leu Ala Gly
                20                  25                  30

gcg act gaa gaa ccc ggc gcc ggc caa acc ccg ggt gcg ccg gtc gtg     144
Ala Thr Glu Glu Pro Gly Ala Gly Gln Thr Pro Gly Ala Pro Val Val
            35                  40                  45

gcg ccg caa cag agt tgg aac agc tgc cgc gag ttc atc gcc gac acc     192
Ala Pro Gln Gln Ser Trp Asn Ser Cys Arg Glu Phe Ile Ala Asp Thr
        50                  55                  60

agc gaa att cgc act gca cgc tgc gcg acg gtg tcc gtc ccc gtc gac     240
Ser Glu Ile Arg Thr Ala Arg Cys Ala Thr Val Ser Val Pro Val Asp
65                  70                  75                  80

tac gac caa ccc ggt ggg aca caa gcg aag ttg gcg gtg atc cgc gtc     288
Tyr Asp Gln Pro Gly Gly Thr Gln Ala Lys Leu Ala Val Ile Arg Val
                85                  90                  95

ccc gcg acg gga cag cga ttc gga gca ctg ctg gtc aat cct ggg gga     336
Pro Ala Thr Gly Gln Arg Phe Gly Ala Leu Leu Val Asn Pro Gly Gly
                100                 105                 110

ccc ggg gcg tcg gcg gtc gac atg gtc gcc gct atg gca ccc gcg atc     384
Pro Gly Ala Ser Ala Val Asp Met Val Ala Ala Met Ala Pro Ala Ile
            115                 120                 125

gcc gac acc gac att ctc cgc cac ttc gac ctg gtg ggc ttc gac ccg     432
Ala Asp Thr Asp Ile Leu Arg His Phe Asp Leu Val Gly Phe Asp Pro
        130                 135                 140

aga ggg gtc ggc cac tcg acc cct gcg ttg cgg tgt cgc acc gac gcc     480
Arg Gly Val Gly His Ser Thr Pro Ala Leu Arg Cys Arg Thr Asp Ala
145                 150                 155                 160

gag ttc gac gcg tac cgg cgc gat ccg atg gcc gac tac agt ccg gcc     528
Glu Phe Asp Ala Tyr Arg Arg Asp Pro Met Ala Asp Tyr Ser Pro Ala
                165                 170                 175

ggc gtc acc cac gtc gaa cag gtc tac cgg cag ttg gcc cag gac tgt     576
Gly Val Thr His Val Glu Gln Val Tyr Arg Gln Leu Ala Gln Asp Cys
            180                 185                 190

gtt gac cgg atg ggc ttc agc ttc ttg gcc aat atc ggt acc gcg tcc     624
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        Val Asp Arg Met Gly Phe Ser Phe Leu Ala Asn Ile Gly Thr Ala Ser
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        atc aac tac ctc gga tac agc tac ggc acc aag ttg ggc acc gct tac    720
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        225                 230                 235                 240

        ctg gaa cgg ttc ggt act cat gtg cgg gcg atg gtc ctc gac ggc gct    768
  10    Leu Glu Arg Phe Gly Thr His Val Arg Ala Met Val Leu Asp Gly Ala
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        atc gat cca gcc gtt agc cca atc gag gaa agc atc agc caa atg gcg    816
        Ile Asp Pro Ala Val Ser Pro Ile Glu Glu Ser Ile Ser Gln Met Ala
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        ccg gcc tgc cct ctg ggc acc gac tcg gcc cag tgg gtc aac cgc tac    912
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                290                 295                 300

        cac gcc ctg gtt gac ccg ctg gtg cag aag ccg ggt aag acg tcg gat    960
        His Ala Leu Val Asp Pro Leu Val Gln Lys Pro Gly Lys Thr Ser Asp
        305                 310                 315                 320

        cca cgt ggc ctg agc tac gcc gac gcg acg acg ggc acc atc aac gcg   1008
  25    Pro Arg Gly Leu Ser Tyr Ala Asp Ala Thr Thr Gly Thr Ile Asn Ala
                            325                 330                 335

        ctg tac agc cct cag cgc tgg aag tac ctg acc agt ggt ctg ctg ggg   1056
        Leu Tyr Ser Pro Gln Arg Trp Lys Tyr Leu Thr Ser Gly Leu Leu Gly
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        tat gac ggc cgg gat gca gac ggg cac tac agc aac gac cag gac gcg   1152
        Tyr Asp Gly Arg Asp Ala Asp Gly His Tyr Ser Asn Asp Gln Asp Ala
  35            370                 375                 380

        ttc aac gcg gtc cgg tgc gtc tat gcg ccc aca ccg gcc gat cca gcg   1200
        Phe Asn Ala Val Arg Cys Val Tyr Ala Pro Thr Pro Ala Asp Pro Ala
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        gcc tgg gtg gcc gcc gac caa cgg atc cgt cag gtc gcc ccg ttc ctt   1248
  40    Ala Trp Val Ala Ala Asp Gln Arg Ile Arg Gln Val Ala Pro Phe Leu
                            405                 410                 415

        agc tac ggg cag ttc acc gga tcc gcc ccc cgc gat ctg tgc gcg ctg   1296
        Ser Tyr Gly Gln Phe Thr Gly Ser Ala Pro Arg Asp Leu Cys Ala Leu
                            420                 425                 430

  45    tgg ccg gtg ccg gca acg tcg acg ccg cac ccc gcg gcg ccg gcc ggg   1344
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      Tyr Gln Ser Gly Val Asp Leu Ala Arg Gln Leu Gly Ala Pro Leu Ile
      465                    470                     475             480

      acc ttc gac ggc acc caa cac act gcg gtg ttc gat ggc aac cag tgt    1488
      Thr Phe Asp Gly Thr Gln His Thr Ala Val Phe Asp Gly Asn Gln Cys
10                           485                    490             495

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              515                    520


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20    <213> Mycobacterium tuberculosis

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      Ala Thr Glu Glu Pro Gly Ala Gly Gln Thr Pro Gly Ala Pro Val Val
               35                  40                  45
      Ala Pro Gln Gln Ser Trp Asn Ser Cys Arg Glu Phe Ile Ala Asp Thr
               50                  55                  60
30    Ser Glu Ile Arg Thr Ala Arg Cys Ala Thr Val Ser Val Pro Val Asp
          65                  70                  75                  80
      Tyr Asp Gln Pro Gly Gly Thr Gln Ala Lys Leu Ala Val Ile Arg Val
                       85                  90                  95
      Pro Ala Thr Gly Gln Arg Phe Gly Ala Leu Leu Val Asn Pro Gly Gly
35                  100                 105                 110
      Pro Gly Ala Ser Ala Val Asp Met Val Ala Ala Met Ala Pro Ala Ile
              115                 120                 125
      Ala Asp Thr Asp Ile Leu Arg His Phe Asp Leu Val Gly Phe Asp Pro
          130                 135                 140
40    Arg Gly Val Gly His Ser Thr Pro Ala Leu Arg Cys Arg Thr Asp Ala
      145                 150                 155                 160
      Glu Phe Asp Ala Tyr Arg Arg Asp Pro Met Ala Asp Tyr Ser Pro Ala
                      165                 170                 175
      Gly Val Thr His Val Glu Gln Val Tyr Arg Gln Leu Ala Gln Asp Cys
45            180                 185                 190
      Val Asp Arg Met Gly Phe Ser Phe Leu Ala Asn Ile Gly Thr Ala Ser
              195                 200                 205
      Val Ala Arg Asp Met Asp Met Val Arg Gln Ala Leu Gly Asp Asp Gln
          210                 215                 220
50    Ile Asn Tyr Leu Gly Tyr Ser Tyr Gly Thr Lys Leu Gly Thr Ala Tyr
      225                 230                 235                 240
      Leu Glu Arg Phe Gly Thr His Val Arg Ala Met Val Leu Asp Gly Ala
                      245                 250                 255
      Ile Asp Pro Ala Val Ser Pro Ile Glu Glu Ser Ile Ser Gln Met Ala
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 5           290                  295                    300
     His Ala Leu Val Asp Pro  Leu Val Gln Lys Pro Gly Lys Thr Ser Asp
     305                  310   .                315                    320
     Pro Arg Gly Leu Ser Tyr Ala Asp Ala Thr Thr Gly Thr Ile Asn Ala
                 325                  330                    335
10   Leu Tyr Ser Pro Gln Arg Trp Lys Tyr Leu Thr Ser Gly Leu Leu Gly
                 340                  345                    350
     Leu Gln Arg Gly Ser Asp Ala Gly Asp Leu Leu Val Leu Ala Asp Asp
                 355                  360                    365
     Tyr Asp Gly Arg Asp Ala Asp Gly His Tyr Ser Asn Asp Gln Asp Ala
15           370                  375                    380
     Phe Asn Ala Val Arg Cys Val Tyr Ala Pro Thr Pro Ala Asp Pro Ala
     385                  390                    395                    400
     Ala Trp Val Ala Ala Asp Gln Arg Ile Arg Gln Val Ala Pro Phe Leu
                 405                  410                    415
20   Ser Tyr Gly Gln Phe Thr Gly Ser Ala Pro Arg Asp Leu Cys Ala Leu
                 420                  425                    430
     Trp Pro Val Pro Ala Thr Ser Thr Pro His Pro Ala Ala Pro Ala Gly
                 435                  440                    445
     Ala Gly Lys Val Val Val Val Ser Thr Thr His Asp Pro Ala Thr Pro
25           450   .              455                    460
     Tyr Gln Ser Gly Val Asp Leu Ala Arg Gln Leu Gly Ala Pro Leu Ile
     465                  470                    475                    480
     Thr Phe Asp Gly Thr Gln His Thr Ala Val Phe Asp Gly Asn Gln Cys
                 485                  490                    495
30   Val Asp Ser Ala Val Met His Tyr Phe Leu Asp Gly Thr Leu Pro Pro
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  1               5                10                   15

cag ctg tat cgg cga acg ctg aat gtg gca cag gag ctg agc cgt tgt   96
Gln Leu Tyr Arg Arg Thr Leu Asn Val Ala Gln Glu Leu Ser Arg Cys
                 20                  25                   30

ggt tcc acg ggt gac cgc gtg gtg atc tct gct ccg cag gga ctc gag   144
Gly Ser Thr Gly Asp Arg Val Val Ile Ser Ala Pro Gln Gly Leu Glu
             35                  40                   45
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      tac gtc gtc gcc tat ctc ggc gcg ttg cag gcc ggg cgc atc gcc gtg    192
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          50                      55                  60

      ccg ctt tcg gtt cca caa ggc ggc gtt acc gat gaa cgt tcc gat tcg    240
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          65                  70                  75                  80

      gta ctg agt gat tcg tcg ccg gtg gcc att ctc act aca tcg tct gcc    288
      Val Leu Ser Asp Ser Ser Pro Val Ala Ile Leu Thr Thr Ser Ser Ala
                      85                  90                  95

 10   gtg gac gac gtc gtg caa cat gtt gcg cgg cgg ccc ggg gaa tcc ccg    336
      Val Asp Asp Val Val Gln His Val Ala Arg Arg Pro Gly Glu Ser Pro
                  100                 105                 110

      cca tca att atc gaa gtt gat ttg ctc gat ctg gac gct ccg aat ggg    384
      Pro Ser Ile Ile Glu Val Asp Leu Leu Asp Leu Asp Ala Pro Asn Gly
 15           115                 120                 125

      tat acc ttc aaa gaa gac gag tat cca tct acc gcg tat ttg caa tac    432
      Tyr Thr Phe Lys Glu Asp Glu Tyr Pro Ser Thr Ala Tyr Leu Gln Tyr
          130                 135                 140

      acc tcc ggg tcc acc cgc acg ccc gct ggc gtg gtg atg tcc cat cag    480
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      145                 150                 155                 160

      aac gtt cgg gtt aat ttc gaa cag ctg atg tct ggc tac ttt gcg gat    528
      Asn Val Arg Val Asn Phe Glu Gln Leu Met Ser Gly Tyr Phe Ala Asp
                      165                 170                 175

 25   acc gac ggg att cca ccg cca aat tcc gca ctc gta tcc tgg cta ccc    576
      Thr Asp Gly Ile Pro Pro Pro Asn Ser Ala Leu Val Ser Trp Leu Pro
                  180                 185                 190

      ttc tac cac gac atg ggt ttg gta ata gga att tgc gca cca att ctg    624
      Phe Tyr His Asp Met Gly Leu Val Ile Gly Ile Cys Ala Pro Ile Leu
 30           195                 200                 205

      ggt gga tac ccc gcg gtg ctc acc agc ccg gtg tcg ttc ctg cag cgc    672
      Gly Gly Tyr Pro Ala Val Leu Thr Ser Pro Val Ser Phe Leu Gln Arg
          210                 215                 220

      ccg gcc cgg tgg atg cac ttg atg gcc agc gat ttt cac gcc ttt tcg    720
 35   Pro Ala Arg Trp Met His Leu Met Ala Ser Asp Phe His Ala Phe Ser
      225                 230                 235                 240

      gca gca ccg aat ttc gcc ttt gaa cta gcg gca cga aga aca acc gac    768
      Ala Ala Pro Asn Phe Ala Phe Glu Leu Ala Ala Arg Arg Thr Thr Asp
                      245                 250                 255

 40   gac gac atg gcc ggg cgt gac ctc ggc aac ata ctg acc atc ctc agc    816
      Asp Asp Met Ala Gly Arg Asp Leu Gly Asn Ile Leu Thr Ile Leu Ser
                  260                 265                 270

      ggt agc gag cgg gta cag gcc gcg acg atc aag cgc ttc gcc gac cgc    864
      Gly Ser Glu Arg Val Gln Ala Ala Thr Ile Lys Arg Phe Ala Asp Arg
 45           275                 280                 285
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- 47 -

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ttt gct cgc ttc aat ctg cag gag agg gtg aaa gct taa                903
Phe Ala Arg Phe Asn Leu Gln Glu Arg Val Lys Ala
    290             295                 300
```

<210> 6
<211> 300
<212> PRT
<213> Mycobacterium tuberculosis

<400> 6

```
Asp Tyr Glu Gln Asp Trp Asp Gly Val Ala Ile Thr Leu Thr Arg Ser
 1               5                   10                  15
Gln Leu Tyr Arg Arg Thr Leu Asn Val Ala Gln Glu Leu Ser Arg Cys
            20                  25                  30
Gly Ser Thr Gly Asp Arg Val Val Ile Ser Ala Pro Gln Gly Leu Glu
            35                  40                  45
Tyr Val Val Ala Tyr Leu Gly Ala Leu Gln Ala Gly Arg Ile Ala Val
        50                  55                  60
Pro Leu Ser Val Pro Gln Gly Gly Val Thr Asp Glu Arg Ser Asp Ser
 65                  70                  75                  80
Val Leu Ser Asp Ser Ser Pro Val Ala Ile Leu Thr Thr Ser Ser Ala
                85                  90                  95
Val Asp Asp Val Val Gln His Val Ala Arg Arg Pro Gly Glu Ser Pro
            100                 105                 110
Pro Ser Ile Ile Glu Val Asp Leu Leu Asp Leu Asp Ala Pro Asn Gly
            115                 120                 125
Tyr Thr Phe Lys Glu Asp Glu Tyr Pro Ser Thr Ala Tyr Leu Gln Tyr
            130                 135                 140
Thr Ser Gly Ser Thr Arg Thr Pro Ala Gly Val Val Met Ser His Gln
145                 150                 155                 160
Asn Val Arg Val Asn Phe Glu Gln Leu Met Ser Gly Tyr Phe Ala Asp
                165                 170                 175
Thr Asp Gly Ile Pro Pro Pro Asn Ser Ala Leu Val Ser Trp Leu Pro
            180                 185                 190
Phe Tyr His Asp Met Gly Leu Val Ile Gly Ile Cys Ala Pro Ile Leu
            195                 200                 205
Gly Gly Tyr Pro Ala Val Leu Thr Ser Pro Val Ser Phe Leu Gln Arg
            210                 215                 220
Pro Ala Arg Trp Met His Leu Met Ala Ser Asp Phe His Ala Phe Ser
225                 230                 235                 240
Ala Ala Pro Asn Phe Ala Phe Glu Leu Ala Ala Arg Arg Thr Thr Asp
                245                 250                 255
Asp Asp Met Ala Gly Arg Asp Leu Gly Asn Ile Leu Thr Ile Leu Ser
            260                 265                 270
Gly Ser Glu Arg Val Gln Ala Ala Thr Ile Lys Arg Phe Ala Asp Arg
            275                 280                 285
Phe Ala Arg Phe Asn Leu Gln Glu Arg Val Lys Ala
    290             295                 300
```

<210> 7
<211> 432
<212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
<222> (1)..(432)

```
<220>
<221> mat_peptide
<222> (1)..(432)

<400> 7
gcc acc acc ctt ccc gtt cag cgc cac ccg cgg tcc ctc ttc ccc gag    48
Ala Thr Thr Leu Pro Val Gln Arg His Pro Arg Ser Leu Phe Pro Glu
 1               5                  10                  15

ttt tct gag ctg ttc gcg gcc ttc ccg tca ttc gcc gga ctc cgg ccc    96
Phe Ser Glu Leu Phe Ala Ala Phe Pro Ser Phe Ala Gly Leu Arg Pro
             20                  25                  30

acc ttc gac acc cgg ttg atg cgg ctg gaa gac gag atg aaa gag ggg   144
Thr Phe Asp Thr Arg Leu Met Arg Leu Glu Asp Glu Met Lys Glu Gly
         35                  40                  45

cgc tac gag gta cgc gcg gag ctt ccc ggg gtc gac ccc gac aag gac   192
Arg Tyr Glu Val Arg Ala Glu Leu Pro Gly Val Asp Pro Asp Lys Asp
     50                  55                  60

gtc cac att atg gtc cgc gat ggt cag ctg acc atc aag gcc gag cgc   240
Val His Ile Met Val Arg Asp Gly Gln Leu Thr Ile Lys Ala Glu Arg
 65                  70                  75                  80

acc gag cag aag gac tta gac ggt cgc tcg gaa ttc gcg tac ggt tcc   288
Thr Glu Gln Lys Asp Leu Asp Gly Arg Ser Glu Phe Ala Tyr Gly Ser
                 85                  90                  95

ttc gtt cgc acg gtg tcg ctg ccg gta ggt gct gac gag gac gac att   336
Phe Val Arg Thr Val Ser Leu Pro Val Gly Ala Asp Glu Asp Asp Ile
             100                 105                 110

aag gcc acc tac gac aag ggc att ctt act gtg tcg gtg gcg gtt tcg   384
Lys Ala Thr Tyr Asp Lys Gly Ile Leu Thr Val Ser Val Ala Val Ser
             115                 120                 125

gaa ggg aag cca acc gaa aag cac att cag atc cgg tcc acc aac tga   432
Glu Gly Lys Pro Thr Glu Lys His Ile Gln Ile Arg Ser Thr Asn
             130                 135                 140


<210> 8
<211> 143
<212> PRT
<213> Mycobacterium tuberculosis

<400> 8
Ala Thr Thr Leu Pro Val Gln Arg His Pro Arg Ser Leu Phe Pro Glu
 1               5                  10                  15
Phe Ser Glu Leu Phe Ala Ala Phe Pro Ser Phe Ala Gly Leu Arg Pro
             20                  25                  30
Thr Phe Asp Thr Arg Leu Met Arg Leu Glu Asp Glu Met Lys Glu Gly
         35                  40                  45
Arg Tyr Glu Val Arg Ala Glu Leu Pro Gly Val Asp Pro Asp Lys Asp
     50                  55                  60
Val His Ile Met Val Arg Asp Gly Gln Leu Thr Ile Lys Ala Glu Arg
 65                  70                  75                  80
Thr Glu Gln Lys Asp Leu Asp Gly Arg Ser Glu Phe Ala Tyr Gly Ser
                 85                  90                  95
Phe Val Arg Thr Val Ser Leu Pro Val Gly Ala Asp Glu Asp Asp Ile
```

```
                    100               105               110
       Lys Ala Thr Tyr Asp Lys Gly Ile Leu Thr Val Ser Val Ala Val Ser
                115               120               125
       Glu Gly Lys Pro Thr Glu Lys His Ile Gln Ile Arg Ser Thr Asn
  5             130               135               140
```

<210> 9
<211> 1161
<212> DNA
<213> Mycobacterium tuberculosis

10 <220>
    <221> CDS
    <222> (1)..(1161)

    <220>
    <221> mat_peptide
15 <222> (1)..(1161)

    <400> 9
    aat tcg atg cca gtc ccg ccg gcg cca cca gcg ccg ccg tca ccg atc   48
    Asn Ser Met Pro Val Pro Pro Ala Pro Pro Ala Pro Pro Ser Pro Ile
     1   5   10   15

20 aac ccg ccg gtg ccg ccg gtg ccg ccg cta ccg gcc gcg ccc cgg acg   96
    Asn Pro Pro Val Pro Pro Val Pro Pro Leu Pro Ala Ala Pro Arg Thr
                    20   25   30

    ctg tcg ccg ccg gta ccg ccg gcg ccg ccg tcg ccg atc agc ttg gcg   144
    Leu Ser Pro Pro Val Pro Pro Ala Pro Pro Ser Pro Ile Ser Leu Ala
25   35   40   45

    gcc ccg ccg ctg cca ccg gac ccg ccg atg ccg ccg gcc att tgg tcc   192
    Ala Pro Pro Leu Pro Pro Asp Pro Pro Met Pro Pro Ala Ile Trp Ser
                50   55   60

    gca ctg gag gcg ccg aac cct ccg gtg ccc ccg gcg ccg ccg gga ccg   240
30 Ala Leu Glu Ala Pro Asn Pro Pro Val Pro Pro Ala Pro Pro Gly Pro
        65   70   75   80

    aac agt gcg ccg gca ccg ccg atg ccg ccg acg cct cct ttg ccg ccg   288
    Asn Ser Ala Pro Ala Pro Pro Met Pro Pro Thr Pro Pro Leu Pro Pro
                        85   90   95

35 gtg ccg ccg ggg tcg ggc gcg ccg aga ccg gtt ccg gcg gtg ccg cca   336
    Val Pro Pro Gly Ser Gly Ala Pro Arg Pro Val Pro Ala Val Pro Pro
                        100   105   110

    atg ccg cca gcg ccg aag agg atg ccg gcg ttg ccg ccc gcc ccg ccg   384
    Met Pro Pro Ala Pro Lys Arg Met Pro Ala Leu Pro Pro Ala Pro Pro
40   115   120   125

    gcc ccg ccc tca ccg ccc acg agt tgg tta gcg gtg cca gtt ccg ccg   432
    Ala Pro Pro Ser Pro Pro Thr Ser Trp Leu Ala Val Pro Val Pro Pro
                130   135   140

    gtg ccg ccg gtc ccg ccg ttg ccg gtg aag atg ccg ccg tcg cct ccg   480
45 Val Pro Pro Val Pro Pro Leu Pro Val Lys Met Pro Pro Ser Pro Pro
    145   150   155   160
```

```
    gtg ccg ccg ttc cct ccg gcc gag ccg gag act ccg aac ccg ccg gcg     528
    Val Pro Pro Phe Pro Pro Ala Glu Pro Glu Thr Pro Asn Pro Pro Ala
                165                 170                 175

    ccg ccg gca ccg cca ttg gag aac agc ccg ccg ccc ccg ccg gtg ccg     576
  5 Pro Pro Ala Pro Pro Leu Glu Asn Ser Pro Pro Pro Pro Pro Val Pro
                180                 185                 190

    ccg gtg cca ccg gtg ccc ccg ttg acg ctc aac ccg ccg gtg ccg ccg     624
    Pro Val Pro Pro Val Pro Pro Leu Thr Leu Asn Pro Pro Val Pro Pro
                195                 200                 205

 10 gca ccg ccg gcg gcc aac acc tcg aac agc ccg ctg cga ccg ccg gcc     672
    Ala Pro Pro Ala Ala Asn Thr Ser Asn Ser Pro Leu Arg Pro Pro Ala
                210                 215                 220

    ccg ccg gcg cca ccg ttg aag cct ggc ccg ccg gcc ccg ccg atg cca     720
    Pro Pro Ala Pro Pro Leu Lys Pro Gly Pro Pro Ala Pro Pro Met Pro
 15 225                 230                 235                 240

    ccg gct ccg aac agc ccg gcc gcc ccg ccg tcg ccg ccg agc ccg cct     768
    Pro Ala Pro Asn Ser Pro Ala Ala Pro Pro Ser Pro Pro Ser Pro Pro
                245                 250                 255

    gtg ccg gtg ttc ccg act ccg ccg ggc ccc ccg gcg ccg ccg gag ccg     816
 20 Val Pro Val Phe Pro Thr Pro Pro Gly Pro Pro Ala Pro Pro Glu Pro
                260                 265                 270

    aac agc agc ccg ccg gcc ccg ccg gcc ccg cca gcc gcg ccg ttg ccc     864
    Asn Ser Ser Pro Pro Ala Pro Pro Ala Pro Pro Ala Ala Pro Leu Pro
                275                 280                 285

 25 ggg ccg tca ccc ccg gcc cca ccc gcc ccg ccg ttg ccg aat agc ccc     912
    Gly Pro Ser Pro Pro Ala Pro Pro Ala Pro Pro Leu Pro Asn Ser Pro
                290                 295                 300

    gcg gct cca cct ggg ccg ccg gcc tgg ccg ggc gcc ccg gac ccg ccg     960
    Ala Ala Pro Pro Gly Pro Pro Ala Trp Pro Gly Ala Pro Asp Pro Pro
 30 305                 310                 315                 320

    gcc ccg ccg ttg ccg tac agc agc ccg ccg gcc ccg ccg gct tgc ccg    1008
    Ala Pro Pro Leu Pro Tyr Ser Ser Pro Pro Ala Pro Pro Ala Cys Pro
                325                 330                 335

    gtc ccc ggt gcg ccg ttg gcg ccg ttg ccg atc agc gga cgc ccc agc    1056
 35 Val Pro Gly Ala Pro Leu Ala Pro Leu Pro Ile Ser Gly Arg Pro Ser
                340                 345                 350

    aac agc tgg gtg ggc gtg ttc aca atg ttg agc agg ccc tcc aac ggc    1104
    Asn Ser Trp Val Gly Val Phe Thr Met Leu Ser Arg Pro Ser Asn Gly
                355                 360                 365

 40 gcc gcg gcg gcg gcc tca gcg ctc gcg tac gcg cca gcg ccc gca gta    1152
    Ala Ala Ala Ala Ala Ser Ala Leu Ala Tyr Ala Pro Ala Pro Ala Val
                370                 375                 380

    aag gtt tga                                                        1161
    Lys Val
 45 385
```

```
<210> 10
<211> 386
<212> PRT
<213> Mycobacterium tuberculosis


<400> 10
Asn Ser Met Pro Val Pro Pro Ala Pro Pro Ala Pro Pro Ser Pro Ile
1               5                   10                  15
Asn Pro Pro Val Pro Pro Val Pro Pro Leu Pro Ala Ala Pro Arg Thr
            20                  25                  30
Leu Ser Pro Pro Val Pro Pro Ala Pro Pro Ser Pro Ile Ser Leu Ala
        35                  40                  45
Ala Pro Pro Leu Pro Pro Asp Pro Pro Met Pro Pro Ala Ile Trp Ser
        50                  55                  60
Ala Leu Glu Ala Pro Asn Pro Pro Val Pro Pro Ala Pro Pro Gly Pro
65                  70                  75                  80
Asn Ser Ala Pro Ala Pro Pro Met Pro Pro Thr Pro Pro Leu Pro Pro
                85                  90                  95
Val Pro Pro Gly Ser Gly Ala Pro Arg Pro Val Pro Ala Val Pro Pro
            100                 105                 110
Met Pro Pro Ala Pro Lys Arg Met Pro Ala Leu Pro Pro Ala Pro Pro
            115                 120                 125
Ala Pro Pro Ser Pro Pro Thr Ser Trp Leu Ala Val Pro Val Pro Pro
        130                 135                 140
Val Pro Pro Val Pro Pro Leu Pro Val Lys Met Pro Pro Ser Pro Pro
145                 150                 155                 160
Val Pro Pro Phe Pro Pro Ala Glu Pro Glu Thr Pro Asn Pro Pro Ala
                165                 170                 175
Pro Pro Ala Pro Pro Leu Glu Asn Ser Pro Pro Pro Pro Pro Val Pro
            180                 185                 190
Pro Val Pro Pro Val Pro Pro Leu Thr Leu Asn Pro Pro Val Pro Pro
            195                 200                 205
Ala Pro Pro Ala Ala Asn Thr Ser Asn Ser Pro Leu Arg Pro Pro Ala
        210                 215                 220
Pro Pro Ala Pro Pro Leu Lys Pro Gly Pro Pro Ala Pro Pro Met Pro
225                 230                 235                 240
Pro Ala Pro Asn Ser Pro Ala Ala Pro Pro Ser Pro Pro Ser Pro Pro
                245                 250                 255
Val Pro Val Phe Pro Thr Pro Pro Gly Pro Pro Ala Pro Pro Glu Pro
            260                 265                 270
Asn Ser Ser Pro Pro Ala Pro Pro Ala Pro Pro Ala Ala Pro Leu Pro
        275                 280                 285
Gly Pro Ser Pro Pro Ala Pro Pro Ala Pro Pro Leu Pro Asn Ser Pro
        290                 295                 300
Ala Ala Pro Pro Gly Pro Pro Ala Trp Pro Gly Ala Pro Asp Pro Pro
305                 310                 315                 320
Ala Pro Pro Leu Pro Tyr Ser Ser Pro Pro Ala Pro Pro Ala Cys Pro
                325                 330                 335
Val Pro Gly Ala Pro Leu Ala Pro Leu Pro Ile Ser Gly Arg Pro Ser
            340                 345                 350
Asn Ser Trp Val Gly Val Phe Thr Met Leu Ser Arg Pro Ser Asn Gly
        355                 360                 365
Ala Ala Ala Ala Ala Ser Ala Leu Ala Tyr Ala Pro Ala Pro Ala Val
        370                 375                 380
Lys Val
385
```